

# **UPF-CAE**

# **Recommendations**

**Sources on alternative  
methods to replace  
vivisection**



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# Introduction

Every year millions of nonhuman animals are used in experiments across the world for the purposes of vivisection – i.e. the live cutting or any other harmful or invasive use of their bodies, with or without anaesthetic, including psychological and trauma testing in laboratory, military, educational or other environments.

Experiments on nonhumans can last from hours to months and consist of practices involving all sorts and degrees of psychological and physical pain, including forcibly restraining, isolating, shocking, addicting to drugs, starving, infecting, burning, shooting, poisoning, damaging brain tissue, blinding and genetically manipulating, among others.

The ethical dilemmas raised by these practices are enormous and generate growing opposition to animal testing as well as increasing interest in alternatives. These alternatives and the growing interest in them are by no means new; organisations and scientists have been involved in new drug designs and experimental research methods that promote humane alternatives for decades. In the EU, legislation requires national governments to contribute financially to the development and validation of non-animal testing methods – the final aim of the EU regulation is actually phasing out all types of animal testing (EU Directive 2010/63/EU).

The replacement of vivisection with humane, animal-free alternatives is an urgent and inescapable necessity in the progress toward a more ethical society. This report gathers some of the most relevant sources of information about alternative methods to facilitate access to them for journalists, policy makers and the general public.

# The vivisection industry

The vivisection industrial complex (VIC) is a major business. The term designates different types of organizations and businesses whose source of funding depends on, or is related to, using nonhumans animals for research. These include:

- (a) Public or private companies directly conducting or commissioning animal testing (mainly pharmaceutical, but also chemical, cosmetic, and tobacco companies, as well as the government);
- (b) Academic institutions (universities, research labs, medical schools); and
- (c) Suppliers of animals for research and of services related to animal testing such as providing organs, instruments, and training.

As is the case with any other big industry, the VIC invests large amounts of resources to protect its business, including marketing and public relations. It is not surprising therefore that the industry has become the main source of information for the media, policy makers and the general public.

Nevertheless, today there is a large amount of independent reliable information about alternatives to vivisection. This information includes a wide range of state-of-the-art, non-animal research methods with demonstrated benefits.

# This report

This report gathers some of the most important sources on alternatives to animal testing published to date from around the world. They may be of help in finding the actual facts, collecting accurate data, contacting independent authorities and experts, learning about the validation of alternatives and procedures, accessing funding opportunities, identifying the best databases and discovering additional literature on the subject.

The lists of sources provided to these ends include:

- Authorities for validating alternative methods
- Research centers and consortiums involved in alternative methods
- Organizations that fund research on alternative methods
- Animal rights organizations focused on alternative methods
- Databases of alternative methods
- Academic journals reporting on alternative methods
- A recommended bibliography

We encourage anyone in need of information on animal testing to use the resources recommended in this report to learn about the growing alternatives and their benefits for humans and nonhumans alike.

## **1. Authorities for validating alternative methods to animal testing**

### **EU**

#### **European Union Reference Laboratory for alternatives to animal testing (Former European Centre for the Validation of Alternative Methods) (EURL-ECVAM)**

[eurl-ecvam.jrc.ec.europa.eu/](http://eurl-ecvam.jrc.ec.europa.eu/)

The European Commission's involvement in activities with the aim of validating alternative approaches to animal testing started in 1991 with the launch of the ECVAM (the European Centre for the Validation of Alternative Methods), hosted by the Joint Research Centre. From 2011, the ECVAM's tasks were assigned to the EURL-ECVAM. Research laboratories can submit the alternative methods they have developed to the EURL-ECVAM for validation. The EURL-ECVAM also supports researchers in the development and dissemination of their alternative methods for wide use in industry and acceptance by regulators.

#### **European Union Network of Laboratories for the Validation of Alternative Methods (EU-NETVAL)**

[eurl-ecvam.jrc.ec.europa.eu/eu-netval](http://eurl-ecvam.jrc.ec.europa.eu/eu-netval)

The EU-NETVAL was established by the European Union Reference Laboratory for alternatives to animal testing and the European Centre for the Validation of Alternative Methods (EURL-ECVAM) regarding the provision of Directive 2010/63/EU. Its aim is to provide support for EURL-ECVAM validation studies to evaluate alternative methods that might be used to reduce, refine and replace animal experimentation for scientific purposes.

### **US**

#### **Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM)**

[ntp.niehs.nih.gov/pubhealth/evalatm/iccvam/index.html](http://ntp.niehs.nih.gov/pubhealth/evalatm/iccvam/index.html)

ICCVAM was set up in 1997 by the US National Institute of Environmental Health Sciences (NIEHS) with the aim of assessing the scientific validity of new alternative methods to animal testing, and provides recommendations on their relevance, benefits and utility to federal agencies.

## **Germany**

### **Center for Documentation and Evaluation of Alternative Methods to Animal Experiments (ZEBET)**

[www.bfr.bund.de/en/zebet-58194.html](http://www.bfr.bund.de/en/zebet-58194.html)

ZEBET was founded in 1989 with the aim of limiting the use of animals for scientific purposes to the necessary extent and to develop alternatives to animal experiments. It develops, evaluates and validates alternative methods and promotes their recognition and implementation in laws and directives.

## **Japan**

### **Japanese Center for the Validation of Alternative Methods (JaCVAM)**

[www.jacvam.jp/en/index.html](http://www.jacvam.jp/en/index.html)

JaCVAM's policy and mission is to promote the 3Rs (replacement, refinement and reduction) in animal experiments for the evaluation of chemical substance safety in Japan and establish guidelines for new alternative experimental methods through international collaboration.

## **UK**

### **National Centre for the Replacement, Refinement & Reduction of Animal in Research (NC3Rs)**

[www.nc3rs.org.uk/](http://www.nc3rs.org.uk/)

NC3s is a UK-based organization founded with the aim of replacing, refining and reducing the use of animals in research and testing. It funds research, supports collaboration between universities and industry to develop 3Rs technologies, and gives the latest information on the technological and scientific advances for encouraging the practice of 3Rs.

## **International**

### **International Cooperation on Alternative Test Methods (ICATM)**

[ntp.niehs.nih.gov/pubhealth/evalatm/iccvam/international-partnerships/index.html](http://ntp.niehs.nih.gov/pubhealth/evalatm/iccvam/international-partnerships/index.html)

ICATM was founded in 2009 by different national agencies. As of 2017, its members were the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM), the European Union Reference Laboratory for Alternatives to Animal Testing (EURL-ECVAM), the Japanese Center for the Validation of Alternative Methods (JaCVAM), Health Canada's Environmental Health Science and Research Bureau (Health Canada) and the Korean Center for the Validation of Alternative Methods (KoCVAM).

## **2. Research centers and consortiums involved in alternative methods to animal testing**

### **3Rs-Centre ULS**

[www.uu.nl/en/organisation/3rs-centre-uls](http://www.uu.nl/en/organisation/3rs-centre-uls)

This center is part of the department of Animals in Science and Society, in the faculty of Veterinary Medicine at Utrecht University (The Netherlands). It encourages the development, acceptance and implementation of alternative methods that apply the 3Rs.

### **Center for Alternatives to Animal Testing (CAAT)**

[caat.jhsph.edu/](http://caat.jhsph.edu/)

The Johns Hopkins Center for Alternatives to Animal Testing was created in 1981 at Johns Hopkins University (US). The Center supports the creation, development, validation, and use of alternative methods to animal experimentation in research, product safety testing, and education. The center works closely with scientists in industry, government, and academia to create dialogue about new ways to replace animal testing with non-animal methods and the development of new alternatives.

### **European Consensus-Platform for Alternatives (ECOPA)**

[www.ecopa.eu/](http://www.ecopa.eu/)

The primary aim of the ECOPA is to promote the 3Rs in the use of animals in research, testing, education and training in Europe. Current members include: Fincopa (Finnish National Consensus Platform for Alternatives), Francopa (French Platform for the Development of Alternative Methods in Testing), IPAM (Italian Platform on Alternative Methods), Norecopa (Norway's Consensus-Platform for Replacement, Reduction and Refinement of Animal Experiments), REMA (Spanish Network for the Development of Alternative Methods) and SET (German Foundation for the Promotion of Alternate and Complementary Methods to Reduce Animal Testing).

### **European Partnership for Alternative Approaches to Animal Testing (EPAA)**

[ec.europa.eu/growth/sectors/chemicals/epaa\\_en](http://ec.europa.eu/growth/sectors/chemicals/epaa_en)

The EPAA is a voluntary collaboration between the European Commission, European trade associations, and various companies. It was established with the intent of providing knowledge and resources to accelerate the validation and acceptance of alternative approaches to animal use in testing through replacement, reduction and refinement (3Rs).

## **European Society for Alternatives to Animal Testing (EUSAAT)**

[www.eusaat-congress.eu/](http://www.eusaat-congress.eu/)

EUSAAT promotes the dissemination of information about cruelty-free methods to animal experimentation, the development and validation of 3Rs methods and the use of alternative methods in education.

## **Fund for the Replacement of Animals in Medical Experiments (FRAME)**

[www.frame.org.uk/](http://www.frame.org.uk/)

FRAME aims to eliminate the use of animals in any kind of medical or scientific experiments, believing in the development of alternative methods for the benefit of human and non-human animals and the environment. Thanks to its own laboratory and desk-based research, the FRAME investigates and develops new alternative methods and collaborates with other organizations, industry and laboratories.

## **Human Toxicology Project Consortium (HTPC)**

[humantoxicologyproject.org/](http://humantoxicologyproject.org/)

The HTPC mission is to promote a global paradigm shift to an in vitro approach with the aim of avoiding animal testing in the risk assessment of chemicals and drugs – an approach based on a modern understanding of human biology, giving more accurate and rapid results.

## **Japanese Society for Alternatives to Animal Experiments (JSAAE)**

[www.asas.or.jp/jsaae/eng/](http://www.asas.or.jp/jsaae/eng/)

The Japanese Society for Alternatives to Animal Experiments is a scientific organization that undertakes research, development, education, and surveillance activities for promoting international acceptance of the Three Rs as guiding principles for the proper use of animals in scientific testing.

### **3. Organizations that fund research on alternative methods to animal testing**

#### **3R Research Foundation Switzerland**

[www.forschung3r.ch/index\\_en.html](http://www.forschung3r.ch/index_en.html)

The 3R Foundation Switzerland was established in 1987 by the Parliamentary Group for Animal Experimentation Questions, Interpharma and the Foundation for Animalfree Research. Its mission is to promote alternative research methods to the use of animals in scientific experimentation through grants for research projects. It also aims to implement and promote the 3R principles.

#### **Alternatives Research & Development Foundation (ARDF)**

[www.ardf-online.org/](http://www.ardf-online.org/)

The ARDF was founded in 1993 with the aim of developing alternatives to animal testing in science. By means of its grant programs, achievement awards and sponsorship of scientific conferences, the ARDF promotes scientific research that aims to replace, refine and reduce the use of animals. The foundation focuses on exploring non-animal methods and models and collaborates closely with organizations and partners in the science community to come up with alternative technologies.

#### **American Fund for Alternatives to Animal Research (AFAAR)**

[alternativestoanimalresearch.org/afaar/about](http://alternativestoanimalresearch.org/afaar/about)

The AFAAR funds a wide and encompassing range of research involving the use, development or validation of alternatives. This includes a joint project with the NEAVS, the Fellowship Grant for Alternatives to Animal Research in Human Health or Sex Differences. The award supports postdoctoral-level women in science who are committed to using, developing, or validating alternatives to animal research in the field of human health or sex differences.

#### **Animal Free Research UK (formerly the Dr. Hadwen Trust)**

[www.animalfreeresearchuk.org/](http://www.animalfreeresearchuk.org/)

Animal Free Research UK is a UK medical research charity that was established in 1970. The organization funds and promotes non-animal techniques to replace animal experiments. It gives grants to scientists in universities, hospitals and research organizations, thus promoting the practice of non-animal research through its funding and publications.

## **Centre for Documentation and Evaluation of Alternative Methods to Animal Experiments (ZEBET Funding)**

[www.bfr.bund.de/en/zebet-58194.html](http://www.bfr.bund.de/en/zebet-58194.html)

The ZEBET works with national and international organizations and bodies with the intent of scientifically evaluating alternative methods and to promote and disseminate their recognition and implementation. The center provides funding and hosts scientific events, including expert meetings, in order to promote further dialogue between scientists and academics from universities and industry, government representatives and animal welfare organizations.

## **EPAA 3Rs Science Prize**

[ec.europa.eu/growth/sectors/chemicals/epaa/3rs-awards\\_en](http://ec.europa.eu/growth/sectors/chemicals/epaa/3rs-awards_en)

The EPAA partners give annual awards to scientists and laboratory technicians who would like to and who have contributed to the dissemination, implementation and development of alternative methods to animal experimentation.

## **Lush Prize**

[lushprize.org/](http://lushprize.org/)

The Lush Prize gives rewards to initiatives that aim to work to end or replace animal testing, especially in the area of toxicology research. The purpose of the annual prize is to accelerate the introduction of non-animal testing through annual funds to reward effective projects and individuals working worldwide in various fields of science.

## **Mandom International Research Grants on Alternative to Animal Experiments**

[www.mandom.co.jp/english/csr/src/society\\_animal.html](http://www.mandom.co.jp/english/csr/src/society_animal.html)

Mandom, based on the principles of animal welfare and the 3Rs, works to develop replacements for animal experiments using these three approaches. Mandom provides research grants for researchers who aim to develop alternative methods to animal experimentation in scientific fields.

## **Marchig Animal Welfare Trust**

[www.marchigtrust.org/grants.htm](http://www.marchigtrust.org/grants.htm)

The Marchig Animal Welfare Trust was established in 1989 with the purpose of protecting animals and encouraging research and methods in preventing animal cruelty. The trust supports many projects including research for alternatives to animal testing, the establishment of veterinary hospitals, clinics and a network of animal sanctuaries and support of groups protecting animals.

## **Medical Advances Without Animals (MAWA)**

[www.mawa-trust.org.au/](http://www.mawa-trust.org.au/)

MAWA works as an independent medical research and educational trust fund that aims to accelerate the development of non-animal based experimental methods to replace animal testing in medical research. They fund replacement research and train scientists in alternative methods. The trust also provides equipment grants, fellowships, scholarships and sponsorships to scientists and scholars in Australia.

## **National Center for the Replacement, Refinement & Reduction of Animals in Research (NC3Rs)**

[www.nc3rs.org.uk/funding](http://www.nc3rs.org.uk/funding)

NC3Rs is the main funder of 3Rs research in the UK for supporting projects, training and career development. The Centre also funds the commercialization and dissemination of 3Rs technologies.

## **Nordic Prize for Alternatives**

[forskautandjurforsok.se/swedish-fund-for-research-without-animal-experiments/nordic-prize-for-alternatives/](http://forskautandjurforsok.se/swedish-fund-for-research-without-animal-experiments/nordic-prize-for-alternatives/)

The Nordic Prize was founded in 1996 to give rewards to scientists or organizations for the development of alternatives to animal testing and their contributions towards replacing animal experiments. The Swedish Fund for Research Without Animal Experiments, the Danish Alternativfondet, and the Finnish Juliana von Wendts Stiftelse fund this annual or semi-annual reward.

## **People for the Ethical Treatment of Animals (PETA)**

[www.peta.org](http://www.peta.org)

PETA was established in 1980 with the purpose of establishing and defending the rights of all animals. The organization works closely with educational institutes, governments and industries in order to eliminate animal experimentation. It provides funds and grants for researching and validating effective non-animal tests.

## **Swedish Fund for Research Without Animal Experiments**

[forskautandjurforsok.se/swedish-fund-for-research-without-animal-experiments/](http://forskautandjurforsok.se/swedish-fund-for-research-without-animal-experiments/)

The Swedish Fund for Research without Animal Experiments was established in 1964. It has been funding research since 1971 in order to promote the development and validation of replacement alternatives to animal experiments. Grants are awarded annually for research in alternative methods, validation of the methods and information projects.

## **Swedish Research Council**

[www.vr.se/inenglish/researchfunding](http://www.vr.se/inenglish/researchfunding)

The Swedish Research Council is a public agency under the authority of the Ministry of Education and Research in Sweden. The Council provides grants to researchers in order to give them the opportunity to solve a specific research task and to promote the development and dissemination of alternative methods to animal experimentation in parallel with the 3Rs principle.

## **4. Animal rights organizations focused on alternative methods to animal testing**

### **American Anti-Vivisection Society (AAVS)**

[aavs.org/](http://aavs.org/)

Since its establishment in 1883 in the USA, the AAVS aims to put an end to the use of animals in experiments through education, advocacy, and the development of alternative methods in research, testing, and education. They work with individuals, students and parents, educators, advocacy groups, industries, government bodies and members of the scientific community.

### **Animal Justice Project**

[animaljusticeproject.com/](http://animaljusticeproject.com/)

The Animal Justice Project is an international, non-profit organization dedicated to the ending of animal experimentation and other forms of speciesism. They bring to light the reality of vivisection through advocacy, education, outreach and research.

### **Cruelty Free International**

[www.crueltyfreeinternational.org/why-we-do-it/alternatives-animal-testing](http://www.crueltyfreeinternational.org/why-we-do-it/alternatives-animal-testing)

Cruelty Free International (formerly the British Union for the Abolition of Vivisection, founded in 1898) is an animal protection and advocacy group that campaigns for the abolition of all animal experiments. They organize certification of cruelty-free products, which are marked with the symbol of a leaping bunny rabbit.

### **European Coalition to End Animal Experiments (ECEAE)**

[www.eceae.org](http://www.eceae.org)

The European Coalition to End Animal Experiments (ECEAE) was formed in 1990 by organizations across Europe to campaign for a ban on animal testing for cosmetics. Having successfully achieved this objective in 2013, today they lead the European campaign against all animal testing. The coalition is a group of 20 animal protection organizations from across the European Union.

## **Humane Society International (HSI)**

[www.hsi.org/](http://www.hsi.org/)

HIS is saving animals who have suffered from experimentation and also provides information about cruelty-free methods and cosmetic and biomedical testing without using animals or animal products. With their campaigns, they try to raise awareness about the suffering of animals in research experiments and new quicker, safer and more efficient methods to replace animal testing.

## **Last Chance for Animals (LCA)**

[www.lcanimal.org/index.php/about-lca](http://www.lcanimal.org/index.php/about-lca)

Founded in 1984 by Hollywood actor Chris DeRose, Last Chance For Animals (LCA) has its roots in fighting and exposing the inherent cruelty of vivisection.

## **National Anti-Vivisection Society (NAVS)**

[www.navs.org/](http://www.navs.org/)

The National Anti-Vivisection Society (NAVS) was founded in the USA in 1929 and works to promote alternative solutions to get rid of cruel animal experiments and replace them with modern and innovative methods of research through collaboration with scientists from academia, government and industry. They also encourage schools to integrate the technology into classrooms to have a safer, more effective and cruelty-free experimentation, thus paving the way for young researchers to use alternative techniques without harming nonhuman animals.

## **New England Anti-Vivisection Society (NEAVS)**

[www.neavs.org/](http://www.neavs.org/)

The NEAVS was created in 1895 in Boston (USA) dedicated to ending the use of animals in research, testing, and education. The NEAVS advocates for modern ways to replace animal testing in research through research, education and legislation/policy change. Their publications inform people about the ethical, humane, and scientifically superior ways of doing research in the fields of science and medicine.

## **People for the Ethical Treatment of Animals (PETA)**

[www.peta.org](http://www.peta.org)

PETA was established in 1980 on the purpose of establishing and defending the rights of all animals. The organization works closely with educational institutes, governments and industries in order to eliminate animal experimentation.

## **5. Databases on alternative methods to animal testing**

**AltBib (Resources for Alternatives to the Use of Live Vertebrates in Biomedical Research and Testing)**  
[toxnet.nlm.nih.gov/altbib.html](http://toxnet.nlm.nih.gov/altbib.html)

**ALTTOX**  
[alttox.org/about-alttox/](http://alttox.org/about-alttox/)

**Altweb (Alternatives to Animal Testing on the Web)**  
[altweb.jhsph.edu/](http://altweb.jhsph.edu/)

**AnimalAlt-ZEBET Database**  
<http://www.bfr.bund.de/en/databases-573.html>

**DB-ALM (EURL ECVAM Database Service on Alternative Methods to Animal Experimentation)**  
[ecvam-dbalm.jrc.ec.europa.eu/](http://ecvam-dbalm.jrc.ec.europa.eu/)

**InterNICHE**  
[www.interniche.org/en/](http://www.interniche.org/en/)

**Interspecies Database**  
[www.interspeciesinfo.com/](http://www.interspeciesinfo.com/)

**NORECOPA (Noway's National Consensus Platform)**  
[norecpa.no/3r-guide-database](http://norecpa.no/3r-guide-database)

**NORINA (A Norwegian Inventory of Alternatives)**  
[norecpa.no/norina-database](http://norecpa.no/norina-database)

**TSAR (Tracking System for Alternative test methods Review, Validation and Approval in the Context of EU Regulations on Chemicals)**  
[tsar.jrc.ec.europa.eu/](http://tsar.jrc.ec.europa.eu/)

**UC Davis Center for Animal Alternatives**  
[guides.lib.ucdavis.edu/animalalternatives/](http://guides.lib.ucdavis.edu/animalalternatives/)

## **6. Academic journals reporting on alternative methods to animal testing**

### ***Alternatives to Animal Experimentation (ALTEX)***

Publisher: American Society for Cellular and Computational Toxicology  
[www.altex.ch/en/index.html?id=12](http://www.altex.ch/en/index.html?id=12)

### ***Alternatives to Animal Testing and Experimentation (AATEX)***

Publisher: Japanese Society for Alternative to Animal Experiments  
[www.jstage.jst.go.jp/browse/aatex](http://www.jstage.jst.go.jp/browse/aatex)

### ***Alternatives to Laboratory Animals (ATLA)***

Publisher: Fund for the Replacement of Animals in Medical Experiments  
[www.atla.org.uk/](http://www.atla.org.uk/)

### ***Toxicology in Vitro***

Publisher: Elsevier  
[www.journals.elsevier.com/toxicology-in-vitro/](http://www.journals.elsevier.com/toxicology-in-vitro/)

## **7. A recommended bibliography**

### **Books**

Bates, A.W.H. (2017). *Anti-Vivisection and the Profession of Medicine in Britain: A Social History*. London: Palgrave Macmillan.

Knight, A. (2011). *The Costs and Benefits of Animal Experiments*. New York, NY: Palgrave Macmillan

Slusher, M. (2016). *They All Had Eyes: Confessions of a Vivisectionist*. Danvers, MA: Vegan Publishers.

### **Statistics**

European Commission. (2017). EU statistical reports on the use of animals for scientific purposes.

[ec.europa.eu/environment/chemicals/lab\\_animals/reports\\_en.htm](http://ec.europa.eu/environment/chemicals/lab_animals/reports_en.htm)

USDA/APHIS (2017). Animals used in research in the US. United States Department of Agriculture.

[www.aphis.usda.gov/aphis/ourfocus/animalwelfare](http://www.aphis.usda.gov/aphis/ourfocus/animalwelfare)

### **Discussion papers**

Almiron, N. & Khazaal, N. (2016). Lobbying Against Compassion: Speciesist Discourse in the Vivisection Industrial Complex. *American Behavioral Scientist*, 60(3): 256–275.

[journals.sagepub.com/doi/abs/10.1177/0002764215613402](http://journals.sagepub.com/doi/abs/10.1177/0002764215613402)

Faria, C. (2017). Commentary: A flimsy case for the use of non-human primates in research: a reply to Arnason. *Journal of Medical Ethics*, Published Online First.

[jme.bmjjournals.org/content/early/2017/10/14/medethics-2017-104444](http://jme.bmjjournals.org/content/early/2017/10/14/medethics-2017-104444)

## **Scientific papers (see more in the recommended journals)**

Bailey, J. (2008). NHP Genetic similarities offer no results. Response to Morgal et. al.'s "The use of nonhuman primate models in HIV vaccine development". *PLoS Medicine*, 5(8): 173.  
[www.neavs.org/resources/publication/genetic-similarities-offer-no-results](http://www.neavs.org/resources/publication/genetic-similarities-offer-no-results)

Bailey, J. (2014). Monkey-based research on human disease: The implications of genetic differences. *Alternatives to Laboratory Animals (ATLA)*, 42(5):287-317. [www.ncbi.nlm.nih.gov/pubmed/25413291](http://www.ncbi.nlm.nih.gov/pubmed/25413291)

Godlee, F. (2014). How predictive and productive is animal research? *British Medical Journal*, 348. [www.bmj.com/content/348/bmj.g3719](http://www.bmj.com/content/348/bmj.g3719)

Leaman, J., Latter, J., & Clemence, M. (2014). Attitudes to animal research in 2014: A report by Ipsos MORI for the Department for Business, Innovation & Skills.  
[www.ipsos.com/ipsos-mori/en-uk/attitudes-animal-research-2014](http://www.ipsos.com/ipsos-mori/en-uk/attitudes-animal-research-2014)

Pound, P. & Bracken, M. (2014). Is animal research sufficiently evidence-based to be a cornerstone of biomedical research? *British Medical Journal*, 348. [www.bmj.com/content/348/bmj.g3387](http://www.bmj.com/content/348/bmj.g3387)

Pound, P., Ebrahim, S., Sandcock, P., Bracken, M. B., & Roberts, I. (2004). Where is the evidence that animal research benefits humans? *British Medical Journal*, 328: 514-517. [www.bmj.com/content/328/7438/514](http://www.bmj.com/content/328/7438/514)

Seok, J.; Warren, H.S.; Cuenca, A.G.; Mindrinos, M.N.; Baker, H.V.; Xu, W.; Richards, D.R.; McDonald-Smith, G.P.; Gao, H.; Hennessy, L.; Finnerty, C.C.; López, C.M.; Honari, S.; Moore, E.E.; Minei, J.P.; Cushieri, J.; Bankey, P.E.; Johnson, J.L.; Sperry, J.; Nathens, A.B.; Billiar, T..; West, M.A.; Jeschke, M.G.; Klein, M.B.; Gamelli, R.L.; Gibran, N.S.; Brownstein, B.H.; Miller-Graziano, C.; Calvano, S.E.; Mason, P.H.; Cobb, J.P.; Rahme, L.G.; Lowry, S.F.; Maier, R.V.; Moldawr, L.L.; Herndon, D.N.; Davis, R.W.; Xiao, W.; Tompkins, R.G. (2013). Genomic responses in mouse models poorly mimic human inflammatory diseases. *Proceedings of the National Academy of Sciences*, 110: 3507-12.  
[www.pnas.org/content/110/9/3507.abstract](http://www.pnas.org/content/110/9/3507.abstract)

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